



[From the TRANSACTIONS of the ZOOLOGICAL SOCIETY, Vol. xi. part i. 1880.]

1. *On the External Characters of two Species of British Dolphins* (*Delphinus delphis*, Linn., and *Delphinus tursio*, Fabr.). By WILLIAM HENRY FLOWER, LL.D., F.R.S., P.Z.S., &c.

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[PLATE I.]

IT is somewhat remarkable that no really adequate figure of so well known an animal as the Common Dolphin (*Delphinus delphis*, Linn.) is to be found in any zoological publication. The best with which I am acquainted is one given by Reinhardt ("Notits om en paa Östkysten af Jylland funget *Delphinus delphis*," in "Naturh. Forenings Vidensk. Meddelelser," Nos. 10, 11, 1866), from an animal 5 feet 4 inches long, taken near Grenaa, on the Jutland shore of the Cattegat in November 1865. This figure, however, is not coloured, and wants the details of the markings seen in the specimen to be described presently.

Perhaps the next best figure, and, indeed, in some respects superior, is that given in the illustrated edition of Cuvier's 'Règne Animal,' which is stated to be "*d'après une peinture originale de Maréchal faisant partie des vélins du Muséum.*" The figures in the volume on Cetacea in the 'Naturalists' Library,' by Dr. Hamilton, and in Bell's 'British Quadrupeds,' are apparently founded on this, though in the latter the tail is differently formed, the gradations of colour are badly given, and the whole creature has too thick and clumsy an appearance. Klein's figure (*Hist. Piscium Naturalis*, ii. 1741) professes to be original, from an animal 9 feet 2 inches (Rhenish) in length, in which case it could not have been *D. delphis*, but was more probably *D. tursio*, as surmised by Cuvier. It is reproduced by Bonnaterre (*Cétologie*, 1789) and by

Lacépède (*Hist. Nat. des Cétacés*, 1804), with the addition of the conventional fountain from the blow-hole, in both cases without acknowledgment.

The earlier figures, all more or less inexact in outline, rude in execution, and wanting in colour, are those of Belon (1551), Rondelet (1554), and Aldrovandus (1613). The two former, especially that of Rondelet, have been repeated with modifications by the various compilers of the last two centuries. Belon's account of the external characters and anatomy of the Common Dolphin, the Porpoise, and of a third species (of which I shall speak presently), is a very remarkable work for the time at which it was written¹.

On the 13th of March last Mr. F. Buckland kindly informed me that he had just received from Mr. Matthias Dunn, of Mevagissey, a Dolphin which had been caught in the mackerel-nets about twenty miles south of the Deadman Headland, Cornwall. It proved to be a young female *Delphinus delphis*. The elegance of the form, and the beauty and variety of the colouring, were such that I thought it desirable to obtain a correct coloured drawing of the animal while fresh, which, reduced to the scale of one sixth the natural size, is reproduced in fig. 1, Plate I. Instead of being simply black above and white below, as usually described, the sides were shaded, mottled, and streaked with various tints of yellow and grey, the distribution of which can be better understood by a reference to the figure than by any description. The under surface was of the purest possible white. Perfect symmetry was shown in the colouring and markings on the two sides of the body.

The length of the animal in a straight line from the tip of the beak to the notch in the middle of the tail was 5 feet 1½ inch. The other principal dimensions were as follows:—

	inches.
End of beak to anterior end of dorsal fin	31·5
, , insertion of anterior end of pectoral fin	16·1
, , angle of mouth	9·0
Angle of mouth to anterior angle of eye	1·9
Length of eye-aperture	0·8
Posterior angle of eye to external auditory meatus	1·5
Length of base of dorsal fin	8·7
Height of dorsal fin	5·5
Length of anterior margin of pectoral fin	10·0
, posterior , " "	6·9
Breadth of caudal fin	13·8

The dental formula was $\frac{46-44}{48-47} = 185$, which corresponds nearly with that usually

¹ *L'Histoire naturelle des étranges Poissons marins, avec la vraie peinture et description du Dauphin*, &c. Paris, 1551.

observed in the species, some individual variation being always met with, even in the different sides of the mouth. There are fifteen pairs of ribs, the last being unattached to its corresponding vertebra, and 21 lumbar and 31 caudal vertebræ, making altogether, with the cervical and thoracic, a total of 74 vertebræ. The skeleton has been prepared for the Museum of the Royal College of Surgeons. The stomach contained the partially digested remains of numerous fish, apparently mackerel.

This species is the true Dolphin of the ancients, being the most abundant and characteristic species in the Mediterranean. Its exact geographical distribution has not yet been defined with precision, owing to the difficulty of distinguishing it from allied species, a difficulty which it is hoped the present illustration may in some measure help to overcome. It is not uncommon in the Atlantic, being well known on the west coast of France; and it frequently visits the English Channel, pursuing the shoals of pilchards and mackerel. In the Museum of the College of Surgeons is the skeleton of a fine adult animal, which, when alive, must have been about 7 feet long, taken near the beginning of the present century at Worthing. Northwards of this locality it appears to become rare. Van Beneden does not include it among the Cetacea frequenting the Belgian coast, as he was not able to find any example of its capture in the North Sea. Specimens, however, are occasionally met with on the coasts of Norway and Denmark, as mentioned by Lilljeborg and Reinhardt; and it is included in many of the lists of the Cetacea of the Greenland seas; but it is doubtful whether some of the species of the allied genus *Lagenorhynchus* may not have been mistaken for it.

Judging from the figure and description in Scammon's 'Marine Mammals of the North-western Coast of North America' (1874), *Delphinus bairdii*, Dall, is a closely allied, perhaps identical species inhabiting the North Pacific; but further observations, especially osteological comparisons, are required before the latter surmise can be considered proved.

The second species, of which I wish to offer an original and, I believe, faithful drawing to the Society, is *Delphinus tursio* of Fabricius¹. The best known figure of this animal is that given by John Hunter in his classical "Observations on the Structure and Economy of Whales," published in the 'Philosophical Transactions,' vol. lxxvii. (1787). This is taken from a young animal caught, with its mother, near Berkeley, in Gloucestershire, and sent to Hunter by the celebrated Edward Jenner. It is described in the memoir as "a species of Bottle-nosed Whale, the *Delphinus delphis* of Linnaeus." It was, however, identified by Cuvier with *D. tursio* of Fabricius, and so described by Prof. Owen in his editorial notes to Hunter's collected works (1837).

¹ The identification of the present well-known species with the *D. tursio* of Fabricius has been questioned. The description in the 'Fauna Grœnländica' (1780, p. 49) is certainly vague and unsatisfactory; but the name is now so generally accepted that it would cause much confusion to attempt to change it, even if it could be proved to have been wrongly imposed.

This figure is reproduced on a reduced scale in Bell's 'British Quadrupeds.' Bonnaterre's figure of the Nesarnak (*D. tursio*), in his 'Cétologie,' 1789, pl. xi. fig. 1, appears to be a modified copy of the same, though without acknowledgment. The three transverse pale lines crossing the dark part of the body below the dorsal fin, which form a marked feature in this figure, have not been observed in other specimens; they somewhat resemble the pale vertical lines which cross the sides of the two specimens of the young of Risso's Dolphin which have been figured¹.

Another original figure is that given by Dr. Gray in the 10th Plate of the 'Zoology of the Erebus and Terror.' It is from a drawing by Mr. R. Templeton, from a specimen caught in the south of Ireland in November 1828, and evidently a young one, as its length was only 7 feet 6 inches. It does not bear the appearance of very great accuracy; the dorsal fin, especially, is more elevated and erect than in any of the others. Schlegel's figure in his 'Abhandlungen aus dem Gebiete der Zoologie und vergleichenden Anatomie,' Heft 1, 1841, from a specimen 11 feet long, taken off the coast of Holland and stuffed in the Leiden Museum, besides differing in form (especially in the very small size of the pectoral fin) from that known to be characteristic of the species, is represented of a uniform black colour; but it is not stated that this was the case when the animal was fresh, and may have been due to changes in the process of preservation.

There can be little doubt of the correctness of Cuvier's identification of the animal taken at Tréport, on the coast of Normandy, in the beginning of May 1551, exhibited at the Hotel de Nevers at Paris, and described by Belon under the name of "Oudre" or "Orca," with this species. It was 9½ feet long, and had half as many teeth as the true Dolphin, or eighty in all, not counting some small rudimentary ones in front. Accepting this determination, the three species of which Belon was the first to give original and tolerably accurate figures and descriptions are *Delphinus delphis*, *D. tursio*, and *Phocæna communis*.

A good description, but without figure, of a specimen taken upon the Suffolk coast is given by Dr. W. B. Clarke in the Ann. & Mag. Nat. Hist. ser. 2, vol. iv. p. 100 (1849).

The specimen now figured was taken, with several others, near Holyhead, on the 5th of October, 1868. Like the one above described, it was sent to Mr. Buckland, to whose kindness I am indebted for the opportunity of drawing and describing it. The skeleton was prepared for the Oxford University Museum. It was a male, not quite full-grown, as the condition of the epiphyses showed.

The principal dimensions were:—

¹ Flower, Trans. Zool. Soc. vol. viii. pl. i.; Murie, Journ. Anat. Phys. (Nov. 1870) vol. v. pl. v.; Cope, Proc. A. N. S. Philadelphia, 1876, pl. iii.

Total length, in a straight line from end of beak to notch in middle of tail	inches.
" " angle of mouth	114·0
End of beak to anterior edge of dorsal fin	50·0
" " blow-hole	12·5
" " anterior angle of eye	15·0
Length of eye-aperture	14·7
From hinder corner of eye to aperture of ear	1·1
From angle of mouth to anterior angle of eye	3·25
From end of lower jaw to anterior edge of pectoral fin	2·6
Length of pectoral fin, in straight line	24·0
Greatest breadth of pectoral fin	15·5
Length of base of dorsal fin	6·0
Height of dorsal fin	13·0
Breadth of caudal fin	9·0

All the upper parts were of a shining greyish black, shading off to white below, as seen in the figure, the change of colour following an irregular line from the angle of the mouth to the origin of the pectoral fin and continued backwards at the same level. The edge of the upper lip and the tip of the nose were whitish; both sides of the pectoral and caudal fins were black. There was no other colour to be distinguished on the whole surface but black, white, and the intermediate grey. The usual "screw" form of the caudal fin in the Cetacea was very marked, the upper surface of the right lobe being concave, that of the left lobe convex.

This species is rare in the Mediterranean, though Gervais gives several instances of its capture in the Gulf of Lyons. It probably has a more northern range than *D. delphis*; but, as in the case of that species, there is still much obscurity as to the exact limits of its distribution.

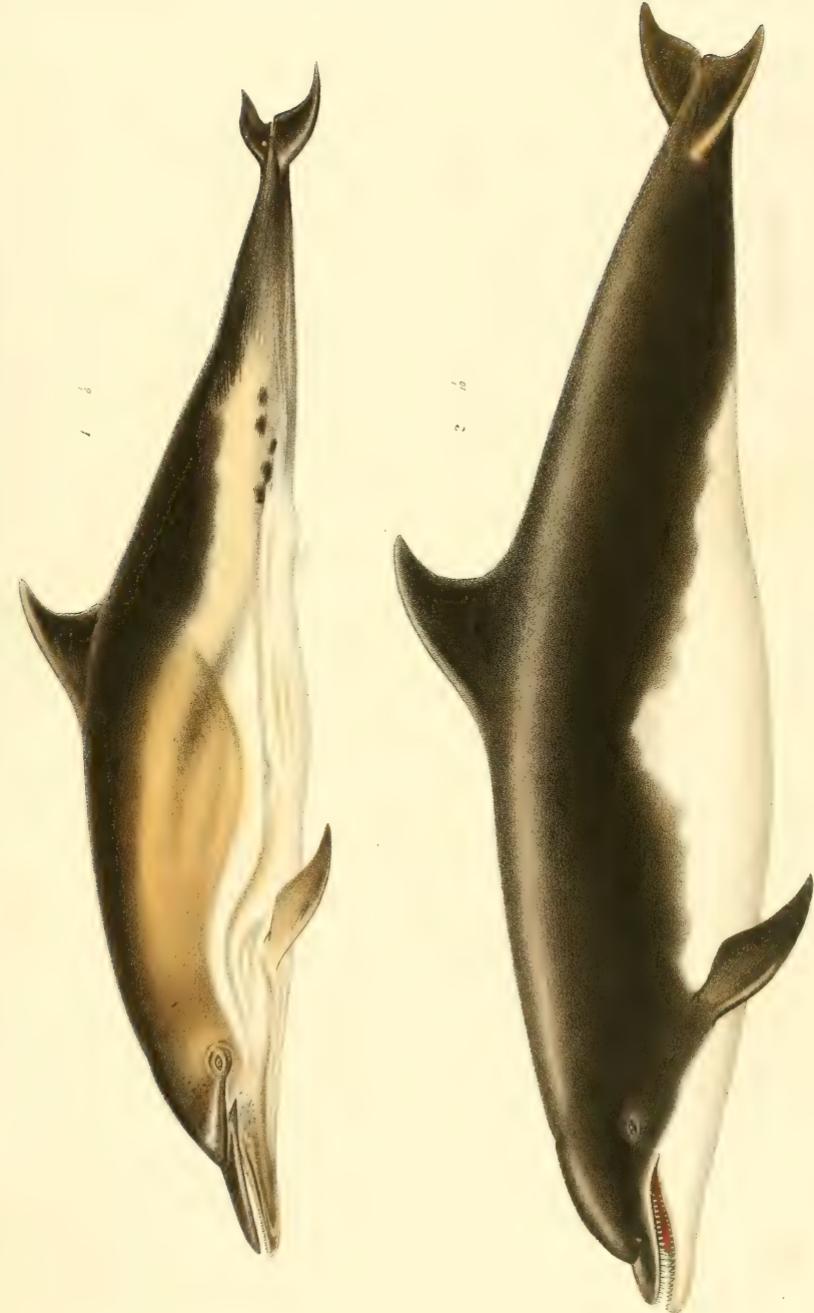
Mr. Buckland has added casts of both these specimens to his valuable series of models of Cetacea, which exhibit, better than by any other method yet devised, the form, proportions, and colour of these animals, otherwise so difficult of preservation.

DESCRIPTION OF THE PLATE.

PLATE I.

Fig. 1. *Delphinus delphis* ♀, from an original drawing, by R. W. Sherwin, of a specimen captured off the coast of Cornwall in March 1879.
 Fig. 2. *Delphinus tursio* ♂, from an original drawing, by W. H. Flower, of a specimen captured near Holyhead, October 5, 1868.

Pl. 22. Prod. Pl. Vol. XI. 1891.









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Monographs on Cetaceas.